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| **Algorithm 1:** Binary Search |
| **Input:** An ordered array *arr*, the searching value *v*.  **Output:** The returned value. If can not find, return None. |
| 1. *i* ← *arr*[1] 2. *j* ←*arr*[end] 3. **while** *i* ≤ *j* **do** 4. *mid* ← (*i*+*j*)/2 5. **if** *arr*[*mid*] == *value* **then** 6. **return** *value* 7. **else if** *arr*[*mid*] < *value* **then** 8. *i* ← *mid* + 1 9. **else** 10. *j* ← *mid* – 1 11. **end if** 12. **end while** 13. **return** None |